Effective Date: July 11, 2005
Last Revision Date: June 21, 2012

CP 4.2 Congenital Adrenal Hyperplasia (CAH)--Follow-Up of Positives

Cutoffs:

Cutoffs are expressed in nmol/L. Some physicians will be unfamiliar with nmol/L. See CAH Conversion Table (3.11.2 A) for conversion to ng/dl.

The cutoffs are determined based on birth weight divided into the following four categories as follows:

First Tier Testing Cut-offs ~ April 20, 2011

	17-OHP value (nmol/L)	
Birth Weight	**Urgent Cut-off** (specimens with values equal to or above this cut-off are called out as positive)	**Indeterminate Cut-off** (specimens with values equal to or above this cut-off, but below the 1st tier cut-off get additional testing using MS/MS)
<1000g	300	80
1000g – 1499g	200	80
1500g – 2499g	80	55
2500g +	70	50

Second Tier Testing Cut-offs (using MS/MS)

All values measured in nmol/L	**To be positive, both measures must be equal to or above the cut-offs.**
17-OHP	38.0 nmol/L
17-OHP + Androstendione)/Cortisol	1

General Information:

The CA NBS Program screens for Classical CAH (Simple Virilizing and Salt Wasting) which is caused by a deficiency of 21-hydroxylase. The Program will detect mostly classical CAH (simple virilizing and salt wasting), A small percentage of the non-classical forms may also be detected, as they will have slightly elevated 17-OHP values.

The Program utilizes a 2-tiered approach to testing depending on the baby's weight and the values of the initial screen. The initial screen for CAH measures 17 hydroxyprogesterone (17-OHP) using an immunofluorescence assay. Newborns with high 17-OHP values ("*Urgent" Values*) on the initial screen will be called out immediately from the NAPS lab to the Area Service Center. The ASC will strongly recommend a referral to a CCS-approved endocrine special care center or if not feasible to a CCS-paneled pediatric endocrinologist for diagnostic evaluation. 17-OHP values that are elevated, but below the cutoffs designated as "urgent" values are deemed "indeterminate". These specimens will be tested again by tandem mass spectrometry. This second test will measure not only 17 OHP, but also androstenedione and cortisol. Newborns with a high value of 17-OHP and a high ratio of 17-OHP and

androstenedione to cortisol on the MS/MS test will be called out to the ASC and referred to a CCS-approved endocrine center for a diagnostic evaluation and testing.

Panic Value

The NAPS labs are required to repeat the analysis of specimens having an initial positive 17-OHP value that is greater than its analytical range or high standard (varies with each reagent lot), which is deemed a "Panic Value." Prior to repeating the test, the labs are to report the result to the ASC and enter a Confirmation of Contact in SIS. The ASC is to immediately initiate follow-up by carrying out this protocol. The lab will report the confirmed result to the ASC as soon as it is available.

Babies Who Are at Home When Positive Results Are Reported

A baby with salt-wasting CAH is at risk for having a life-threatening adrenal crisis. A baby with a positive screen who has been discharged home before results are known should be seen by a pediatric endocrinologist and have confirmatory testing immediately.

ATTACHMENTS

4.2 A *Why Does My Baby Need More Testing for Congenital Adrenal Hyperplasia?*

4.2 B State-Recommended Guidelines for Follow-up of a positive Newborn Screen for CAH Newborns Who Are Home When Screening Results Return

4.2 C State-Recommended Guidelines for Follow-up of a Positive Newborn Screen for CAH Babies in the Neonatal Intensive Care Unit

4.1 C California Children's Services-Approved Endocrinology Centers

Protocol:

Resp. Person	Action
NAPS lab (FOR URGENT VALUES)	• **As soon as possible but no later than the end of the same day,** calls appropriate ASC when initial result is urgent positive (including panic values). • Reports out confirmed result after repeat of panic value as soon as it is available. • Enters C of C into SIS, thereby including positive case on ASC Headline Cases.
GDL (AFTER 2ND TIER TESTING ON INDETERMINATE VALUES)	• **As soon as possible but no later than the end of the same day (Monday through Friday),** calls appropriate ASC when 2nd tier test is positive for CAH. • Enters C of C into SIS, thereby including positive case on ASC Headline Cases.
ASC NBS Coord.	• **As soon as possible, but no later then 24 hours after notification** (on weekends and holidays, timeframes begin at the time that the NAPS laboratory leaves message on ASC answering machine), calls results to newborn's physician and/or the hospital (usually a neonatologist) if infant is still hospitalized. Discusses Program's recommendation for immediate referral to CCS-approved endocrine special care center (SCC) or CCS-paneled pediatric endocrinologist if SCC is not feasible**. Informs PCP of the urgent need for an already-discharged baby to be seen by an endocrinologist and for confirmatory testing (serum 17-OHP).**

4.2 Follow-Up for Congenital Adrenal Hyperplasia (CAH)

	• Faxes to PCP/neonatologist appropriate Guideline for Follow-up of a Positive Screen for CAH (attachment 4.2 B or 4.2 C) and list of CCS-approved endocrine centers (4.1C). • For panic value: Informs PMD that because the 17-OHP value is greater than the analytical range or high standard, 1) the test is being repeated and the results on the mailer will reflect the result of the 2nd analysis, and not the one being reported;2) if the specimen is negative on repeat, he/she will be notified. • Assists physician with referral to appropriate SCC/pediatric endocrinologist per protocol for *Referral to CCS Special Care Center or CCS-paneled Specialist* (3.19) Requests information from physician regarding his/her (or family's) preferences (may be dictated by insurance). • Documents all attempts at notification, interactions with physicians and parents using tracking event(s) and/or case notes into SIS. • Sends follow-up letter to physician confirming results on baby and referral information (includes attachment 4.2 A "*Why Does My Baby Need More Testing for Congenital Adrenal Hyperplasia*"). • If baby has been discharged from hospital, also sends parent letter notifying of need for referral to endocrinologist and includes attachment 4.2 A. • Reports unusual occurrences such as missed cases, anomalous/inconsistent results, lost to follow-up cases, delays in contacting family, delays in analysis or reporting of confirmatory results, etc, to the NBS Nurse Consultant/ASC contract Liaison. • Refers case to Child Protective Services per protocol, as needed. Follows case until baby has been seen and diagnosis is confirmed or ruled out. If diagnosed by primary care physician or neonatologist, strongly recommends that baby be referred to endocrine center for care and facilitates referral. • Requests (from primary care provider and/or pediatric endocrinologist) written documentation of diagnosis or rule out of disorder, as per Case Resolution Protocol 3.20. and copy of lab result on which decision is based **(this is not necessary if there is a completed Endocrine Service Report in SIS)**. When received, files in ASC files. • Resolves case on Case Resolution screen in SIS per Case Resolution protocol. • For confirmed cases, provides information to the SCC, endocrinologist and/or primary care provider on the availability of *Parents' Guide to CAH*.
CCS-approved endocrine center staff	• Contacts PMD to discuss health status of newborn and follow-up. Determines if immediate visit at endocrine center or a hospital is indicated. • At initial visit assists parent/guardian with completing CCS application. • Faxes completed CCS application to local county CCS office. Orders diagnostic laboratory testing.

4.2 Follow-Up for Congenital Adrenal Hyperplasia (CAH)

	• Provides information to family on where and when to go for specimen collection for confirmatory studies. • Sends copy of test results to ASC for files. • Bills family's insurance and CCS per CCS guidelines. • If the center has a vendor agreement with GDSP, enters baby information in SIS Endocrine Service Report as per Scope of Work requirements.
CCS- paneled pediatric endocrinologists (not on staff of a CCS-approved endocrine center)	• **NOTE:** Expedited referral process does not apply to pediatric endocrinologists not affiliated with CCS-approved SCC. • Requests authorization for diagnostic services. • Contacts PCP to discuss health status of newborn and follow-up for newborn referred. Determines appropriate action (e.g., if baby needs to be taken to a hospital for evaluation or if baby needs to be seen immediately by specialist). • At initial visit assists parent/guardian with completion of CCS application per CCS policy and faxes completed application to local CCS office. • Orders diagnostic laboratory testing. • Provides information to family on where and when to go for specimen collection. • Bills CCS for diagnostic services per CCS guidelines.

